PATENT SPECIFICATION
DRAWINGS ATTACHED

1,019,316

1019316

Date of Application and filing Complete Specification Dec. 12, 1963.
No. 49147/63.
Application made in Mexico (No. 49147) on Aug. 28, 1963.
Complete Specification Published Feb. 2, 1966.

Index at acceptance: —B8 T(2B1, 20B)
Int. Cl.: —B 67 b

COMPLETE SPECIFICATION

Bottle Cap

ERRATUM

SPECIFICATION No. 1,019,316
Amendment No 1

Page 1, Heading, Number of Application made Mexico, *for* "(No. 49147)" *read* "(No 73648)"

THE PATENT OFFICE
8th March 1966

as a liner material it is common to [illegible] sanitary conditions since the cork often becomes contaminated during transportation thereof and it is difficult to clean cork once it has become dirty. Cork is also undesirable as a cap liner in that very costly machinery must be utilized to properly grind the cork and form disks from the bonded granules.

In order to dispense with the necessity of cork liners the prior art has provided cap liners constructed of plastics material. The machines for forming the plastics material into cap liners is relatively inexpensive and sanitary conditions may be maintained without undue effort. Further, a plastic may be chosen which will not react chemically with the contents of the bottle so that the necessity for a spot is eliminated.

Even though the prior art has provided plastic cap liners, the construction of these liners has been less than completely satisfactory in that too often sealing was not obtained and specially constructed assembling machines

[*Price* 4*s.* 6*d.*]

[illegible] from; said groove being partially defined by spaced circular walls; said exterior section defining one of said walls; said interior section defining the other of said walls; and said interior section having a height equal at least to the height of said walls and adapted to fit within said container aperture.

Thus, the invention overcomes the problems of the prior art by providing a cap liner having a circular groove to receive the rim defining the mouth of the bottle. When the closure means is applied to the bottle there is extensive surface contact between the liner and bottle rim thereby permitting ready deformation of the liner thereby accomplishing effective hermetic sealing.

Both sides of the liner may be provided with circular grooves and may be otherwise of identical contour. This simplifies the construction for the automatic machinery required for assembling the cap and liner. That is, since both sides of the liner are identical there is

Price 33p

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COMPLETE SPECIFICATION

Bottle Cap

I, ANGEL ZAMORA, a citizen of Mexico, residing at 16 Praga, Col. Juarez, Mexico, D.F. Mexico, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to removable closures for bottles and more particularly to a closure, for soft drink bottles, which is provided with a plastic liner.

The mouths of soft drink and beer bottles are usually closed by caps having liners which aid in providing a hermetic seal between the closure and bottle. Where the contents of the bottle will be adversely affected by contact with the liner, a spot must be provided. Traditionally, the liner had been constructed of cork granules bonded together to form a disk.

It has been found that when cork is used as a liner material it is difficult to maintain sanitary conditions since the cork often becomes contaminated during transportation thereof and it is difficult to clean cork once it has become dirty. Cork is also undesirable as a cap liner in that very costly machinery must be utilized to properly grind the cork and form disks from the bonded granules.

In order to dispense with the necessity of cork liners the prior art has provided cap liners constructed of plastics material. The machines for forming the plastics material into cap liners is relatively inexpensive and sanitary conditions may be maintained without undue effort. Further, a plastic may be chosen which will not react chemically with the contents of the bottle so that the necessity for a spot is eliminated.

Even though the prior art has provided plastic cap liners, the construction of these liners has been less than completely satisfactory in that too often sealing was not obtained and specially constructed assembling machines for insertion of the liner into the cap were required.

An object of the present invention is to provide an improved container closure.

According to the invention there is provided a closure means for a container aperture defined by a narrow circular rim; said closure means including a cap having a circular main portion and a skirt portion along the peripheral edge of said main portion; said closure means also including a circular liner disk mounted entirely within said cap adjacent to said main portion and surrounded by said skirt; said disk having a first surface remote from said main portion provided with a relatively narrow circular groove therein concentric with the peripheral edge of said disk and operatively positioned and proportioned to receive the rim defining the said aperture; said first surface including a circular interior section and a relatively narrow annular exterior section surrounding said interior section and spaced therefrom; said groove being partially defined by spaced circular walls; said exterior section defining one of said walls; said interior section defining the other of said walls; and said interior section having a height equal at least to the height of said walls and adapted to fit within said container aperture.

Thus, the invention overcomes the problems of the prior art by providing a cap liner having a circular groove to receive the rim defining the mouth of the bottle. When the closure means is applied to the bottle there is extensive surface contact between the liner and bottle rim thereby permitting ready deformation of the liner thereby accomplishing effective hermetic sealing.

Both sides of the liner may be provided with circular grooves and may be otherwise of identical contour. This simplifies the construction for the automatic machinery required for assembling the cap and liner. That is, since both sides of the liner are identical there is

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Price 33p

no need to provide a sorting machine for placing the liners "right side up" prior to insertion into the cap. Further, the provision of circular grooves on both sides of the liner facilitates its ability to conform to the shape of the bottle rim thereby achieving good sealing.

In order that the invention may be better understood, embodiments thereof will now be described with reference to the accompanying drawing in which.

Figure 1 is a longitudinal cross-section showing a closure means, constructed in accordance with the invention, mounted to a soft drink bottle, with the metal cap being shown in phantom so as not to obscure the relation between the liner and bottle rim;

Figure 2 is a plan view of the liner of figure 1;

Figure 3 is a cross-section taken through line 3—3 of Figure 2 looking in the direction of arrows 3—3; and

Figures 4 and 5 are views similar to Figure 3 showing different embodiments of liners according to the invention.

Now referring to the Figures and more particularly to Figures 1 to 3, bottle neck 11 is provided with an elongated passage 12 whose upper end is provided with a mouth defined by circular rim 13. Closure means 15, at the upper end of neck 11, provides hermetic sealing for the contents of the bottle.

Closure means 15 consists of metal cap 16 and liner 20 of plastics material secured to cap 16 preferably by a suitable adhesive or by utilizing heat. Cap 16 is of conventional construction, being provided with a circular main portion 17 and depending skirt portion 18 having suitable indentations cooperating with neck indentation 19 to mechanically secure closure means 15 to rim 13.

Each surface of liner 20 is provided with a relatively narrow circular groove 21*a*, 21*b*. Groove 21*a* is bounded by very narrow annular exterior portion 22*a* and circular interior portion 23*a*. Similarly, groove 21*b* is defined by annular exterior portion 22*b* and circular interior portion 23*b*. As clearly seen in Figure 1, when closure means 15 is secured to rim 13, rim 13 projects into circular groove 21*b*. Interior portion 23*b* extends into passage 12 and is closely fitted thereto. Further, as seen by comparing Figures 1 and 3, exterior annular portion 22*b* is slightly displaced from the position which it occupied prior to mounting of closure means 15 to rim 13. Further, the relatively flat upper edge of rim 13 is firmly seated against the thin section 25 connecting exterior section 22*a*, 22*b*, to interior sections 23*a*, 23*b*. This construction provides an extremely effective hermetic seal.

It is noted that the contours of both surfaces of liner disk 20 are substantially identical. That is, circular grooves 21*a* and 21*b* are aligned with one another and are of substantially the same depth and width. Similarly interior sections 23*a* and 23*b* are of substantially the same size and shape and annular exterior sections 22*a*, 22*b* are of substantially the same size and shape. Because of this the assembling machine for mounting liner disk 20 to cap 16 need not be provided with a sorting device for placing liner 20 "right side up".

Figures 4 and 5 show slight modifications of the embodiment illustrated in Figures 1 to 3. In both the embodiments of Figures 4 and 5 the interior portion of the liner disk which extends into the bottle neck passage is thicker than the interior section which confronts the main portion of the cap. These constructions appear to achieve the most effective sealing without unnecessary use of material. It is noted that even the embodiments of Figures 4 and 5 are provided with circular grooves on both surfaces thereof aligned with the bottle rim.

For some applications satisfactory results may be obtained by relieving portions of the interior portions. As an example, a series of concentric circular depressions may be formed in the interior portions.

Thus, it is seen that the invention provides a cap liner which is sanitary, easy to assemble to the cap, and provides effective hermetic sealing.

WHAT WE CLAIM IS:—

1. A closure means for a container aperture defined by a narrow circular rim; said closure means including a cap having a circular main portion and a skirt portion along the peripheral edge of said main portion said closure means also including a circular liner disk mounted entirely within said cap adjacent to said main portion and surrounded by said skirt; said disk having a first surface remote from said main portion provided with a relatively narrow circular groove therein concentric with the peripheral edge of said disk and operatively positioned and proportioned to receive the rim defining the said aperture; said first surface including a circular interior section and a relatively narrow annular exterior section surrounding said interior section and spaced therefrom; said groove being partially defined by spaced circular walls said exterior section defining one of said walls; said interior section defining the other of said walls; and said interior section having a height equal at least to the height of said walls and adapted to fit within said container aperture.

2. A closure means as set forth in Claim 1 in which the disk is constructed of plastics material.

3. A closure means as set forth in Claim 1 or 2 in which the opposite surface of said disk is provided with a relatively narrow circular groove aligned with the groove in said first surface.

4. A closure means as set forth in Claim 3 in which said first surface and said opposite surface are of substantially identical contour.

5. A closure means as set forth in any preceding claim in which the annular exterior section of said first surface is substantially narrower than said groove in said first surface.

6. A closure means for a container substantially as described and as shown in the accompanying drawings.

7. A combination comprising a container having an aperture defined by a narrow circular rim and a closure means for said aperture removably secured to said container, said closure means being in accordance with any one of the preceding claims, the rim of said container extending into said groove, and the skirt portion of said cap engaging a formation of said container exteriorly of said rim and co-operating therewith to secure said closure means to said container.

8. A combination as set forth in claim 7 in which said exterior section is in forced engagement with said rim and the forced engagement causes said exterior section to be displaced from the position it occupies relative to said skirt portion prior to mounting of said closure means to said container.

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1019316 COMPLETE SPECIFICATION
1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

FIG. 1.

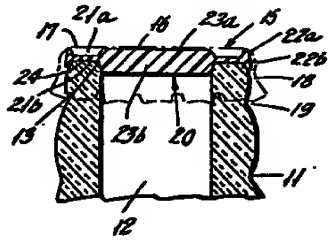


FIG. 3.

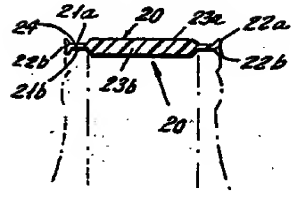


FIG. 4.

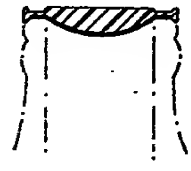
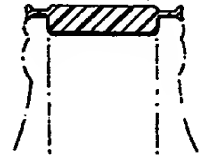


FIG. 5.



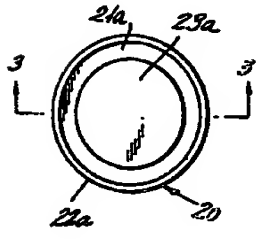


FIG. 2.